

## CLAIMS

1. A preamplifier circuit for amplifying the electrical signal from a condenser microphone transducer, comprising:
  - 5 - a series capacitor between a condenser microphone transducer output and the DC input of an amplifier.
  2. The preamplifier circuit according to claim 1, wherein the capacitor reduces current leakages by blocking a DC path from the condenser microphone transducer to the amplifier input.
  - 10 3. The preamplifier circuit according to claim 1, wherein the amplifier is integrated as a monolithic chip and the capacitor is provided externally.
  4. The preamplifier circuit according to claim 1, wherein the amplifier and the capacitor is integrated as a monolithic chip.
  5. The preamplifier circuit according to claim 4, wherein the monolithic chip is
    - 15 made in a modern IC technology comprising one of: CMOS, JFET, P- or N-type MOSFET, and MESFET.
    6. The preamplifier circuit according to claim 1, wherein the capacitor is a low leakage, floating plates type made as a polysilicon-to-polysilicon capacitor compatible with modern IC technology.
    - 20 7. The preamplifier circuit according to claim 1, wherein the capacitor is a low leakage, floating plates type made as a polysilicon-to-metal capacitor compatible with modern IC technology.
    8. The preamplifier circuit according to claim 1, wherein the capacitor is a low leakage, floating plates type made as a metal-to-polysilicon capacitor compatible
      - 25 patible with modern IC technology.
      9. The preamplifier circuit according to claim 1, wherein the capacitor is a low leakage, floating plates type made as a metal-to-metal capacitor compatible with modern IC technology.

10. The preamplifier circuit according to claim 1, wherein the capacitor is a low leakage, floating plates type made any combination of polysilicon or metal as one plate and any combination of resistive or conductive layer as second plate, all compatible with modern IC technology.

5 11. The preamplifier circuit according to claim 1, wherein the amplifier comprises an input impedance circuit, including a pair of cross-coupled, small area PN junction diodes, which sets the input impedance of the amplifier.

12. The preamplifier circuit according to claim 11, wherein the input impedance of the amplifier is set as substantially equal to or greater than 1 GigaOhm.  
10 gaOhm.

13. The preamplifier circuit according to claim 11, wherein the input impedance of the amplifier is set as substantially equal to or greater than 100 GigaOhms.

14. The preamplifier circuit according to claim 1, wherein the amplifier comprises an input impedance circuit, including a resistor, which sets the input impedance of the amplifier.  
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15. The preamplifier circuit according to claim 14, wherein the input impedance is set as substantially equal to or greater than 1 GigaOhm.

16. The preamplifier circuit according to claim 1, wherein the preamplifier circuit amplifies an electric signal from an electret condenser microphone (ECM).  
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17. The preamplifier circuit according to claim 1, wherein the preamplifier circuit amplifies an electric signal from a silicon-based condenser microphone.

18. A method of amplifying the electrical signal of a condenser microphone transducer, comprising:

25 - providing a signal from the condenser microphone transducer to a capacitor; and

- sending a resultant signal from said capacitor to a DC input of an amplifier.

19. The method according to claim 18, wherein the capacitor prevents leakage currents by blocking a DC path from said condenser microphone transducer to said amplifier.

20. The method according to claim 18, wherein the capacitor is a low leakage, floating plates type made as a metal-to-metal capacitor compatible with modern IC technology.

21. The method according to claim 18, wherein the capacitor is a low leakage, floating plates type made any combination of polysilicon or metal as one plate and any combination of resistive or conductive layer as second plate, all compatible with modern IC technology.

22. The method according to claim 18, wherein the amplifier comprises a pair of cross-coupled, small area PN junction diodes, which sets the input impedance of the amplifier.

23. The preamplifier circuit according to claim 22, wherein the input impedance of the amplifier is set as substantially equal to or greater than 1 GigaOhm.

24. The preamplifier circuit according to claim 22, wherein the input impedance of the amplifier is set as substantially equal to or greater than 100 GigaOhms.

25. The preamplifier circuit according to claim 18, wherein the amplifier comprises a resistor, which sets the input impedance of the amplifier.

26. The preamplifier circuit according to claim 25, wherein the input impedance is set as substantially equal to or greater than 1 GigaOhm.

27. The preamplifier circuit according to claim 18, wherein the preamplifier circuit amplifies an electric signal from an electret condenser microphone (ECM).

28. The preamplifier circuit according to claim 18, wherein the preamplifier circuit amplifies an electric signal from a silicon-based condenser microphone.

29. A method of manufacturing a preamplifier circuit for amplifying the electrical signal from a condenser microphone transducer, comprising:

- inserting a capacitor between a condenser microphone transducer output and the DC input of an amplifier.

5 30. The method according to claim 29, wherein said amplifier is integrated as a monolithic chip.

31. The method according to claim 30, wherein the capacitor is implemented externally with respect to said monolithic chip.

10 32. The method according to claim 30, wherein the capacitor is integrated with said monolithic chip.

33. The method according to claim 30, wherein said monolithic chip is made in a modern IC technology comprising one of: CMOS, JFET, P- or N-type MOS-FET, and MESFET.